

5`UXX]b`]b`5 [ fUVU\ . `9]b`A`ÄfWXYb`j`cb`  
@]YVY`i`bX`A`U[ ]Y`]a`H\YUhyf`

9f`YVYb`G]Y`Ua`"\*"8YnYa`VYf`&\$&( `]b`?`i`gY`XUg`nUi`VYf`UZhY`  
A`ÄfWXYb`j`cb`5`UXX]b`ž`XYf`a`]h`Y]b`Ya`@Ua`dYb`[ ]Y]gh`gY]b`Y`  
k`U\fy`@]YVY`Z]b`XYh`"

8]Y`A`U[ ]Y`j`cb`5`UXX]b.`9]b`H\YUhyfYfY][ ]b]g`  
Z0f`X]Y`[ ]Ub`nY`:`Ua` ]`Y`]b`?`i`gY`

⊖`?`i`gY`k`]fX`XUg`A`ÄfWXYb`j`cb`5`UXX]b`ni`a`@YVYb`Yfk`YW`hi`bX`  
V]Yh`h`Y]b`Y`nUi`VYf`UZhY`J`cf`Z0\`fi`b`[ ž`X]Y`]bg`VY`gcb`XYfY`Z0f`  
GW`i`Yb`i`bX`?`]b`XYf`[ Ä`fh`Yb`i`bh`Yf`U`hg`Ua` ]`Y`gh`U`h`Y`h`k`i`f`XY`"5a`"\*"  
8YnYa`VYf`&\$&( `i`a`'`.'`\$`I` \`f`Yf`YVYb`X]Y`↑`b`[ ]Yb`Ni`gW`Ui`Yf`Y]b`Y`  
gd`Ub`b`Yb`XY` ;`Y`gW`]W`h`Y`j`c`Yf`5`VY`bh`Yi`Yf`i`bX`k`Yf`hj`c`Yf`  
@Y`\_h]cb`Yb`]b`XYf`Z]Ugn]b]Yf`Yb`XYb`?`i`]ggY`j`cb`5`[ fUVU\ž`Y]b`Yf`Gh`UXh`  
j`c`Yf` ;`Y\Y]a`b]ggY`i`bX`A`U[ ]Y`"

9]b`\_`Ugg]gW`X`Y`g`A`ÄfWXYb`a` ]h`Y]b`Yf`6`c`hgW`X`UZh`

5`UXX]b`ž`Y]b`Ufa`Yf`↑`b`[ ]Yf`A`Ubb`ž`XYf`a` ]h`gY]b`Yf`A`i`hh`Yf`YV`h`ž`k`]fX`  
]b`Y]b`Ui`ZfY`[ ]Yb`XYg`5`VY`bh`Yi`Yf`j`Yfk`]W`Y`h`ž`U`g`Yf`XYa`Xi`b`\_`Yb`  
N`Ui`VYf`Yf`8`gW`X`U`Z`Uf`VY`[ ]Y`[ ]b`Yh`8`gW`X`U`Z`Uf`ž`XYf`\`]bh`Yf`Y]b`Yf`  
VY`gcb`XYf`Yb`2`Ua`dY`\Yf`]gh`ž`0`VY`ff`Y`XYh`5`UXX]b`ž`X]Y`gY`Ui`g`Y]b`Yf`  
[ ]Y\Y]a`b]gj`c`Yb`<`0`\Y`ni` \`c`Yb`"8`c`W`5`UXX]b`Yb`hgW`Y]X`Y`h`g]W`  
\_`i`[ ž`X]Y`@Ua`dY`Z0f`g]W`ni`VY`U`h`Y`b`ž`U`g`Yf`Yf`\_`Yb`bh`ž`X`Ugg`XYf`  
N`Ui`VYf`Yf`]b`]b`XYf`<`0`\Y`ni`f`0`W`\_`Ugg`Yb`a`0`W`h`Y`"

8`Yf`@Ua`dYb`[ ]Y]gh.`K`0`bgW`X`Yb`a` ]h`6`Y`X`U`W`h`

5`g`5`UXX]b`X]Y`[ ]Y\Y]a`b]gj`c`Y`@Ua`dY`]b`XYb`<`Ä`b`XYb`\`Ä`h`ž`

YbhZU`hYhg]W\`X]Y`A`O[`]W\`\_Y]hč`K`ØbgW\`Y`ni`YfZØ`Yb``9]b  
@Ja`dYb[`Y]gh`YfgW\`Y]bh`i`bX`ghY``h`gY]bY`8]YbghY`ni`f`J`YfZØ[`i`b[``  
8cW\`X]YgY`A`U[`]Y`Vf]b[`h`b]W\`h`bi`f`f`Yi`XYž`gcbXYfb`Ui`W  
<YfUi`gZc`fXYfi`b[`Yb``5`UXX]b`a`i`gg`YfbYbž`XUgg`k`U\`fY`K`YfhY`i`bX  
@]YVY`a`Y\`f`k`]Y[`Yb`U`g`a`UhYf]Y``Y`8]b[`Y``8]YgY`9f`\_Ybbhb]g`k`]fX  
]a`VYgcbXYfg`\_`Ufž`U`g`Yf`Uga`]bž`X]Y`HcW\`hYf`XYg`Gi`h`Ubgž  
\_YbbYb`Yfb`h`i`bX`g]W\`]b`g]Y`j`Yf`]YVh`

## 8]Y`<`YfUi`gZc`fXYfi`b[`X`Yf`k`U\`fYb`@]YVY

⇒a`6YghfYVYbž`Uga`]b`ni`VYY]bXfi`W`Ybž`Äggh`5`UXX]b`g]W\`Y]bYb  
dfUW\`hj`c``Yb`DU`Ugh`Yff]W\`hYb`i`bX`]bj`Ygh]Yfh]b`gY]b`Äi`»`YfYg  
9fgW\`Y]bi`b[`gV]`X``G\`bY``k`]fX`YXcW\`XYi`h]W\`ž`XUgg`:`UggUXY  
i`bX`FY]W\`hi`a`b]W\`h`X]Y`U``Y]b][`Y`:`fi`bX`U[`Y`ZØf`Y]bY`6Yn]Y\`i`b[  
g]bX``5`g`X]Y`@Ja`dY`]b`X]Y`<`ÄbXY`j`cb`8gW\`UZUf`[`YfÄhž`Yf`\_Ybbh  
5`UXX]b`X]Y`HfU[`k`Y]hY`gY]bYf`9bhgW\`Y]Xi`b[`Yb`i`bX`X]Y`6YXYi`hi`b[  
]bbYfYf`K`YfhY`

## 8]Y`6YXYi`hi`b[`ZØf`X]Y`:`Ya`Y]bgW\`UZh

8]YgY`⇒gnYb]Yfi`b[`j`cb`5`UXX]b`]gh`b]W\`h`bi`f`Y]b`:`Ygh`ZØf`X]Y  
G]bbYž`gcbXYfb`j`Yfa`]hY`h`Ui`W\`k`]W\`h][`Y`@YVYbg`Y`\_h]cbYb``8]Y  
6chgW\`UZhYb`j`cb`:`fYi`bXgW\`UZhž`A`i`hi`bX`XYf`Gi`W\`Y`bUW\`k`U\`fYf  
⇒Ybh]hÄ`h]g]bX`H\`Ya`Ybž`X]Y`ZØf`A`YbgW\`Yb`YXYb`5`hYfg`fY`Yj`Ubh  
g]bX``Gc`W\`Y`5i`ZØ\`fi`b[`Yb`ghÄ`f`\_Yb`X]Y`\_i`hi`fY``Y`6]Xi`b[`†`b[`Yf  
A`YbgW\`Yb`i`bX`ZØfXYfb`X]Y`⇒Ybh]Z]\_Uh]cb`a`]h`\_`Ugg]gW\`Yb  
:`YgW\`]W\`hYb`

## J`c`f`j`Yf`\_`Ui`Z`i`b`X`H]W`\_`Y`h]b`Z`c`f`a`U`h]c`b`Y`b

8Ug`H\`Y`UH`Y`fghØW`\_`j`Yfgdf]W\`h`Y]b`i`bj`Yf[`Ygg`]W\`Yg`9f`YVb]g`ZØf`U``Y  
Ni`gW\`Ui`Yf``H]W`\_`Y`hg`g]bX`Yf\`Ä`h`]W\`i`bhYf`XYf`HY`Y`Zcbbi`a`a`Yf  
\$\*``,`%`(`&`(!`(-`\*`gck`]Y`Ui`Z`XYb`K`YVgY]hYb`k`k`k`"h]W`\_`Y`h]fY[`]cbU``XY  
i`bX`fYgYfj`|`"XY``G]W\`Yfb`G]Y`g]W\`Y`h`h`⇒fY`D`Ä`h`Y`i`bX`Yf`YVYb`G]Y  
X]Y`A`U[`]Y`j`cb`5`UXX]b``]j`Y``

6Ygi W\Yb`G]Y`i bg`Ui Z.`b!U[ "XY